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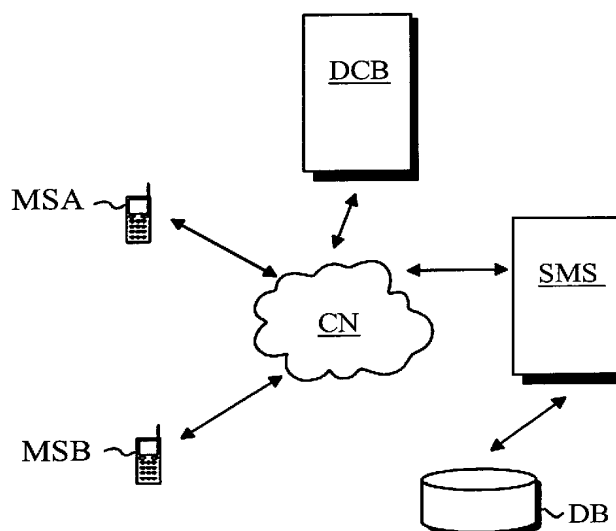
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(54) Title: DIGITAL PAYMENT ORDER



(57) **Abstract:** The invention relates to a method for transferring a digital payment order from a first terminal device to a second terminal device, and for saving the payment order on a payment order server. In the method, the request for the aforementioned payment order is sent from the aforementioned first terminal device (MSA) to the aforementioned payment order server (SMS); in response to the aforementioned request for payment order, the aforementioned payment order is sent from the aforementioned payment order server (SMS) to the aforementioned first terminal device (MSA); the aforementioned payment order is transmitted from the aforementioned first terminal device (MSA) to the aforementioned second terminal device (MSB); the aforementioned payment order is transferred from the aforementioned second terminal device (MSB) to the aforementioned payment order server (SMS) for honouring, and a message informing of the honouring is sent to the aforementioned second terminal device (MSB).



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DIGITAL PAYMENT ORDER

The invention relates to telecommunication systems. In particular, the invention relates to a method in which a digital payment order is transferred
5 from a first terminal device to a second terminal device, and the payment order is saved on a payment order server. Typically a payment order is transmitted in a mobile communication system by means of a short message. A payment order to be transmitted in an elec-
10 tronic form enables totally new services for the user of a mobile station.

PRIOR ART

The arranging of services based on short mes-
15 sages is becoming common. The transmission of short messages is easy for a user of a mobile station whose mobile station belongs to the global system for mobile communications (GSM, Global System for Mobile Communi-
cations).

20 The short message service enables one to send short messages that contain typically up to 160 characters between mobile stations. The transmission of messages does not require that the mobile station is switched on. If the mobile station cannot be reached,
25 the message is saved to the short message service center. The short message service center saves the message for several days, and if the mobile station receiving the message is activated in the area of the mobile network, then the message is sent to the mobile
30 station. Messages are being transmitted either in the area of the same cell or to other cells by means of the roaming feature of the mobile station. Short messages may also be transmitted to other devices, such as digital telephones or e-mail messages.

35 Short messages enable one to implement different services. Typically the user of a mobile sta-

tion sends a short message to a service provider who reads the short message and implements a service, e.g. transfers the balance data of the mobile telephone bill to the user.

5 In the banking world, currency is typically transferred by means of a payment order, as an example of which let it be mentioned a cheque in the form of paper. For the transfer of currency, the client orders from the bank a cheque which includes the details of
10 the sender and recipient and the amount of the currency to be transferred. Upon reception of the cheque, the client sends the cheque further to the recipient, who cashes the cheque in a bank. The transfer of currency by a cheque is typically slow and cumbersome,
15 since the writing of a cheque and its cashing takes a lot of time and since the client needs to visit a bank.

One specific problem is becoming the transmission of a payment order in a telecommunication network. Telecommunication networks, especially the
20 Internet, are very exposed to a possible cracking. When currency is being transferred in a telecommunication network, the information security of the client has to be very well taken care of, in order that the
25 information of the payment order would not end up in the hands of those not concerned. One has to take care also of the fact that the information of the payment order does not change, so that there would be no misuse attempts occurring. Often in telecommunication
30 networks, currency is transferred quite quickly, so there is the danger that the user is not informed well enough of the obligations connected with a payment order.

Previously known is a solution in which currency
35 is transferred by means of a so-called Solo service. In the Solo service, the user has got a client identifier and a list of single-use pass words by

means of which the user of a mobile station controls his/her bank account, e.g. pays a bill. The disadvantage with the Solo service is that the client has to himself/herself take care of the fact that the single-use passwords do not end up in the wrong hands.

The objective of the present invention is to eliminate or alleviate the drawbacks referred to above. One further objective of the present invention is to enable a remarkably simple method for transferring digital payment orders from the payment order server to mobile stations with a restricted amount of memory and calculation capacity.

BRIEF DESCRIPTION OF THE INVENTION

The invention enables one to transmit a digital payment order quickly and easily from the sender to the recipient.

The invention relates to a method in which the sender first acquires a payment order to his/her terminal device. The request for the payment order may be made e.g. by paying a suitable amount of currency into an account attached to the payment order service. When the account crediting has been registered, a message informing of the transaction is sent to the payment order server. The payment order server sees the account crediting as an order of a payment order, so the server sends a payment order to the mobile station of the sender. Usually the payment order server maintains a database of the payment orders. After that the sender of the payment order transfers the payment order further to the recipient of the payment order either at once or within a certain period of time. When the recipient of the payment order has received the payment order, s(he) honours the payment order by sending the payment order to the payment order server. The payment order server receives the payment order and honours the payment order, e.g. by crediting the

account of the recipient, if the account details of the recipient are provided in the message.

In some cases it is useful to follow the proceeding of the payment order, for which checking and confirmation messages are used. When there is a wish to confirm the intended payment order, then a confirmation message is sent to the terminal device of the sender prior to transmitting the payment order to the recipient. If the sender accepts the payment order, then s(he) sends a reply to the confirmation message. A message informing of the account transaction is sent to the terminal device of the sender after the terminal device has received the payment order. The confirmation message is sent when the payment order has been transmitted to the recipient, but not honoured yet. Further the confirmation message may be sent both to the sender of the payment order and to the recipient of the payment order also in such a case when the recipient has honoured the payment order. On the other hand it is also possible to send a reminder a little before the period of validity set in the payment order expires. The payment order is automatically cancelled, when the period of validity set in the payment order expires, in which case a message informing of the cancellation of the payment order is sent to the sender and to the recipient of the payment order.

A payment order, which is often implemented as a digital message, is understood as a payment procedure in which currency is transferred for the value of the payment order from the sender to the recipient. Often the payment order consists of the value of the payment order, name of the sender, the mobile number of the sender, instructions for honouring and an identifier. It is also possible to attach to the payment order the time of creating the payment order, the number of the confirmation messages to be sent, period of validity, method of destruction, if the payment order

is not honoured in time, and the mobile number of the recipient.

In one embodiment of the invention, the digital payment order is transmitted in a mobile communication system. At first, a first mobile station orders a payment order from the payment order server, which delivers the payment order further to the first mobile station. When the first mobile station has received the payment order, the first mobile station sends the payment order to a second mobile station. Upon reception of the payment order, the second mobile station sends the payment order to the payment order server to be honoured.

As compared to prior art, the present invention provides the advantage that the payment order is delivered as a short message, which enables the transmission of the payment order between two different banks quickly and easily without the sender and recipient having to have an account with the same bank. The payment order is transmitted as data secured because, e.g. the radio path of the global system for mobile communications is encrypted. Further a transfer entry is made of the transfer of the payment order in the log, in which case one may follow the proceeding of the payment order and thus make it more difficult to copy and forge the payment order. Furthermore, it is possible to attach to the payment order a number or an identifier consisting of a series of letters, by means of which the payment order is identified accurately, in which case the possible forging gets more difficult. It is no use stealing a mobile station in the hope of getting the payment order because the purpose is that the recipient honours the payment order immediately. The payment order is also transmitted quickly because transmission of information in a telecommunication network is non-delayed or at least very fast. From the point of view of the bank, the method

is advantageous because with the payment order being in the possession of the client, the currency corresponding to it is at the disposal of the bank, without interest. On the other hand the invention also decreases the amount of cash currency, thus decreasing the number of cash dispensers dispensing cash. The maintenance of cash dispensers is often an expensive free service to the banks. The client may receive checking and confirmation messages informing of the transfer of the payment order, so the client is very well informed of the steps connected with the payment order, as shown by the invention.

BRIEF DESCRIPTION OF THE INVENTION

In the following section, the invention will be described by the aid of a few examples of its embodiments with reference to the accompanying drawing, in which

Fig. 1 represents one illustration of the system in accordance with the invention;

Fig. 2 is a flow chart illustrating the method in accordance with the invention; and

Fig. 3 represents one application in accordance with the invention.

DETAILED DESCRIPTION OF THE INVENTION

Fig. 1 represents one system in accordance with the invention. The mobile station MSA is connected via the telecommunication CN and the short message service, in which there is located the payment order server SMS, to the bank interface DCB of a digital payment order. The global system for mobile communications is typically used as the telecommunication network. As the mobile station usually functions the Nokia 3210 which enables one to send and receive short messages, i.e. payment orders. Attached to the short

message service is a database DB in which information relating to the payment orders is saved. The bank interface DCB of the payment order comprises a connection to the information system of the bank, which enables one to honour the payment order quickly and efficiently. The honouring of a payment order typically includes the transfer of money from the sender to the bank account of the recipient.

Fig. 2 represents one diagram of a method of the invention. At first, the mobile station MSA sends a request for the payment order to the payment order server SMS, block 21. Usually the payment order server SMS is located in the short message centre. The payment order server SMS sends the payment order further to the first mobile station MSA, which upon reception of the payment order transmits it further to the second mobile station MSB, blocks 22 and 23. When the second mobile station MSB has received the payment order, the second mobile station MSB honours the payment order by sending the payment order to the payment order server SMS, blocks 24 and 25. From the payment order server SMS, the payment order is transmitted further to the bank interface DCB of the payment order, block 26.

Fig. 3 represents one embodiment in accordance with the invention. Figures 3a, 3b and 3c represent the display of a mobile station. Fig. 3a shows the short message of the first mobile station that is used to order the payment order. When the request for the payment order has been delivered to the payment order server SMS, which in this example is the short message centre, the payment order is returned back to the first mobile station, which is shown in Fig. 3b. The first mobile station MSA sends the payment order further to the second mobile station MSB, at which point the mobile number of the sender and instructions for honouring are attached to the payment order, as

shown in Fig. 3c. A payment order is typically used for the payment of a vehicle, house or auction purchases at the weekend. On the other hand it is possible to send a payment order easily and elegantly also
5 to a secondary school graduate without the sender of the present being there.

In one embodiment of the invention, a VRU based telephone service is used that is quite clear-cut. When the client who has received a payment order
10 calls, then the system sees at once what payment orders the client has not honoured yet. Often there is just one payment order, in which case the VRU may send the client a message of the following form: "Do you wish to honour the payment order received by you?" Answer yes (or press 1), or answer no". On the other
15 hand, if there are several payment orders, then they may be gathered together, and a message of the following form may be sent to the client: "You have three payment orders not honoured yet. Would you like to honour all the payment orders? Answer yes (or press
20 1), or answer no".

In one embodiment of the invention, the client orders a payment order from the Internet. If the payment order is not made by a mobile station, the
25 client has to inform about it in the notifications field. It is possible to transfer the payment order to the recipient without sending it first to the terminal device of the sender. The confirmation messages and other messages are, however, sent to the mobile station of the sender.
30

In one embodiment of the invention, the payment order has expired, whereof the sender is informed by a message. The message informing of the expiration may be of the following form: "the payment order of
35 200 EUR sent to you by Teemu the student of technology (GSM 0400 123 456) has expired and was returned back

to the sender. Blame yourself, not us. Welcome to us. We are always ready to help you. Best regards, bank".

In one embodiment of the invention, the client is informed of the honouring of the payment order by a message, if the system recognizes the client as a regular user. The message informing of the honouring may be of the following form: "The payment order of 200 EUR was deposited in your account 123456-987654". A message informing of the honouring may also be sent to the recipient: "Tiina the student of technology honoured the cheque of 200 EUR that was set by you on 22 October 1999 at 18:00 p.m. on 28 October 1999 at 9:25 a.m." On the other hand, if the client is a random user, a conditional message informing of the honouring may be sent to the client. The conditional message informing of the honouring may be of the form: "The payment order of 200 EUR from Teemu the student of technology will be deposited in your account 123456-987654. If you wish to change the account, please send the new account number as a short message to the number 12345." The payment order in question is waiting for the account number to be corrected, and if there is not going to be an amendment, then the payment order is honoured within two hours and deposited in the account suggested. If the client sends another account number, then the payment order is honoured immediately. In one embodiment of the invention, the system does not know the account number of the client, so the system asks the client for the account number by means of a message. The message inquiring about the account number may be of the following form: "A cheque of 200 EUR from Teemu the student of technology will be deposited in your account as soon as you send your account number in a short message to the number 12345 or call 0200 12345." In the latter telephone number there may e.g. a VRU system answering, to which the user may send the account number as a voice-frequency keying.

It is advisable to ask the client for the account number twice in order to get it right. The account number is saved to the database of the system, so the next time the client is treated as a regular user. Via the
5 VRU menus, the account number may even be changed, unless it is not blocked for security reasons.

In one embodiment of the invention, a client who utilizes the invention very much may have several accounts in the system. In that case, several tele-
10 phone numbers may be attached to the accounts that help the client choose in which account s(he) wishes the money to be deposited. Usually after the honouring a copy of the payment order is saved for several months in the files for authorities.

15 The invention is not restricted merely to the examples of its embodiments, instead many variations are possible within the scope of the inventive idea defined by the claims.

CLAIMS

1. A method for transferring a digital payment order from a first terminal device to a second terminal device and for saving the payment order on a payment order server,

characterized in that the method comprises the steps of:

sending the aforementioned request for payment order from the aforementioned terminal device (MSA) to the aforementioned payment order server (SMS);

sending the aforementioned payment order in response to the aforementioned request for payment order from the payment order server (SMS) to the aforementioned first terminal device (MSA);

transmitting the aforementioned payment order from the aforementioned first terminal device (MSA) to the aforementioned second terminal device (MSB);

transferring the aforementioned payment order from the aforementioned second terminal device (MSB) to the aforementioned payment order server (SMS) for honouring; and

sending a message informing of the honouring to the aforementioned second terminal device (MSB).

2. The method according to claim 1, characterized in that the method further comprises the step of:

sending a checking message from the aforementioned payment order server (SMS) to the aforementioned first terminal device (MSA) prior to transmitting the aforementioned payment order to the second terminal device (MSB); and

transmitting the aforementioned payment order to the second terminal device (MSB), if a confirmation to the checking message is received from the aforementioned first terminal device (MSA) into the aforementioned payment order server (SMS).

3. The method according to claim 1 or 2, characterized in that the method further comprises the step of:

5 sending a message informing of the account transaction to the aforementioned first terminal device (MSA) after the payment order has been transmitted to the aforementioned first terminal device (MSA).

4. The method according to claim 1, 2 or 3, characterized in that the method further
10 comprises the step of:

sending a confirmation message to the aforementioned first terminal device (MSA) after the aforementioned payment order has been delivered to the aforementioned second terminal device (MSB).

15 5. The method according to claim 1, 2, 3 or 4, characterized in that the method further comprises the step of:

20 sending a confirmation message to the aforementioned first terminal device (MSA) after the aforementioned second terminal device (MSB) has honoured the aforementioned payment order.

6. The method according to claim 1, 2, 3, 4 or 5, characterized in that the method further comprises the step of:

25 sending a reminder to the aforementioned second terminal device (MSB) from the aforementioned payment order server (SMS), if the aforementioned second terminal device (MSB) has not honoured the aforementioned payment order within the due date and if the period of
30 validity of the payment order is terminating.

7. The method according to claim 1, 2, 3, 4, 5, or 6, characterized in that the method further comprises the step of:

35 cancelling the aforementioned payment order, if the aforementioned terminal device (MSB) sends the aforementioned payment order to a third terminal device.

8. The method according to claim 1, 2, 3, 4, 5, 6 or 7, characterized in that the method further comprises the step of:

5 cancelling the aforementioned payment order, if the payment order has not been honoured within the due date.

9. The method according to claim 1, 2, 3, 4, 5, 6, 7 or 8, characterized in that the method comprises the step of:

10 sending a message informing of the cancellation to the first terminal device (MSA), if the aforementioned payment order has not been honoured within the due date.

15 10. The method according to claim 1, 2, 3, 4, 5, 6, 7, 8 or 9, characterized in that the method further comprises the step of:

20 sending a message informing of the cancellation to the aforementioned second terminal device (MSB), if the aforementioned payment order has not been honoured within the due date.

11. The method according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, characterized in that the aforementioned payment order consists of a digital message.

25 12. The method according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or 11, characterized in that the aforementioned payment order is defined as a payment procedure in which currency for the value of the payment order is transferred from the sender to the recipient.

30 13. The method according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 or 12, characterized in that the aforementioned payment order is understood as a message which comprises the value of the aforementioned payment order, name of the sender, number of the mobile station, instructions for honouring and an identifier.

14. The method according to claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 or 13, characterized in that the aforementioned payment order is understood as a message which comprises the transmission time, the number of the confirmation messages to be sent, period of validity, the method of destruction, if the aforementioned payment order is not honoured in time, and the mobile number of the recipient.

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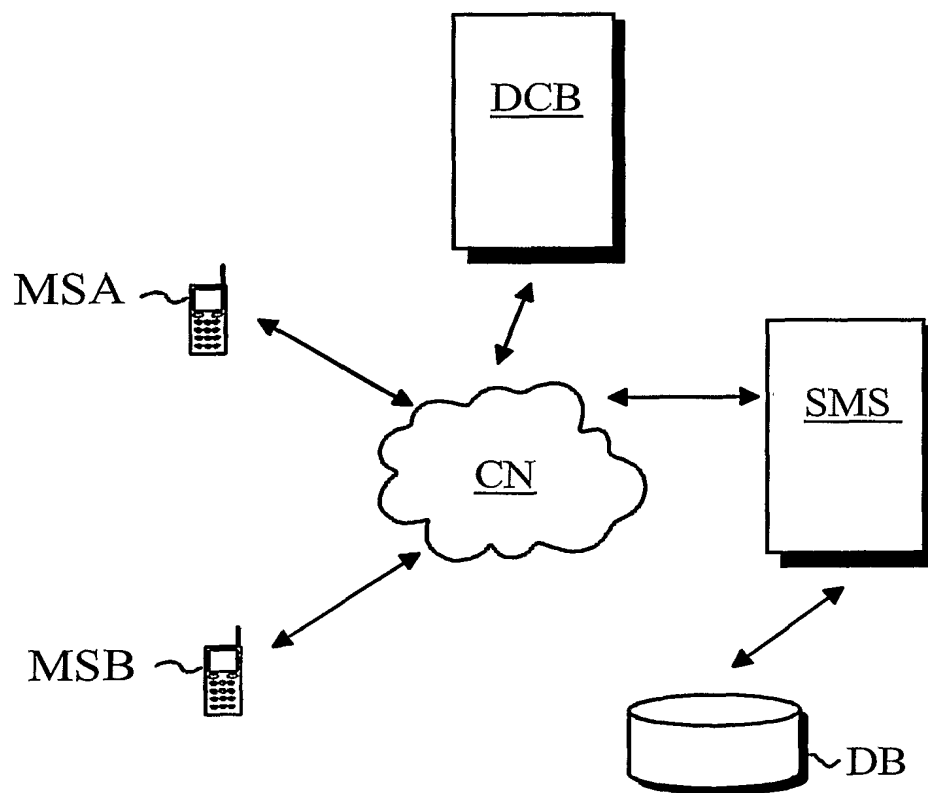


Fig. 1

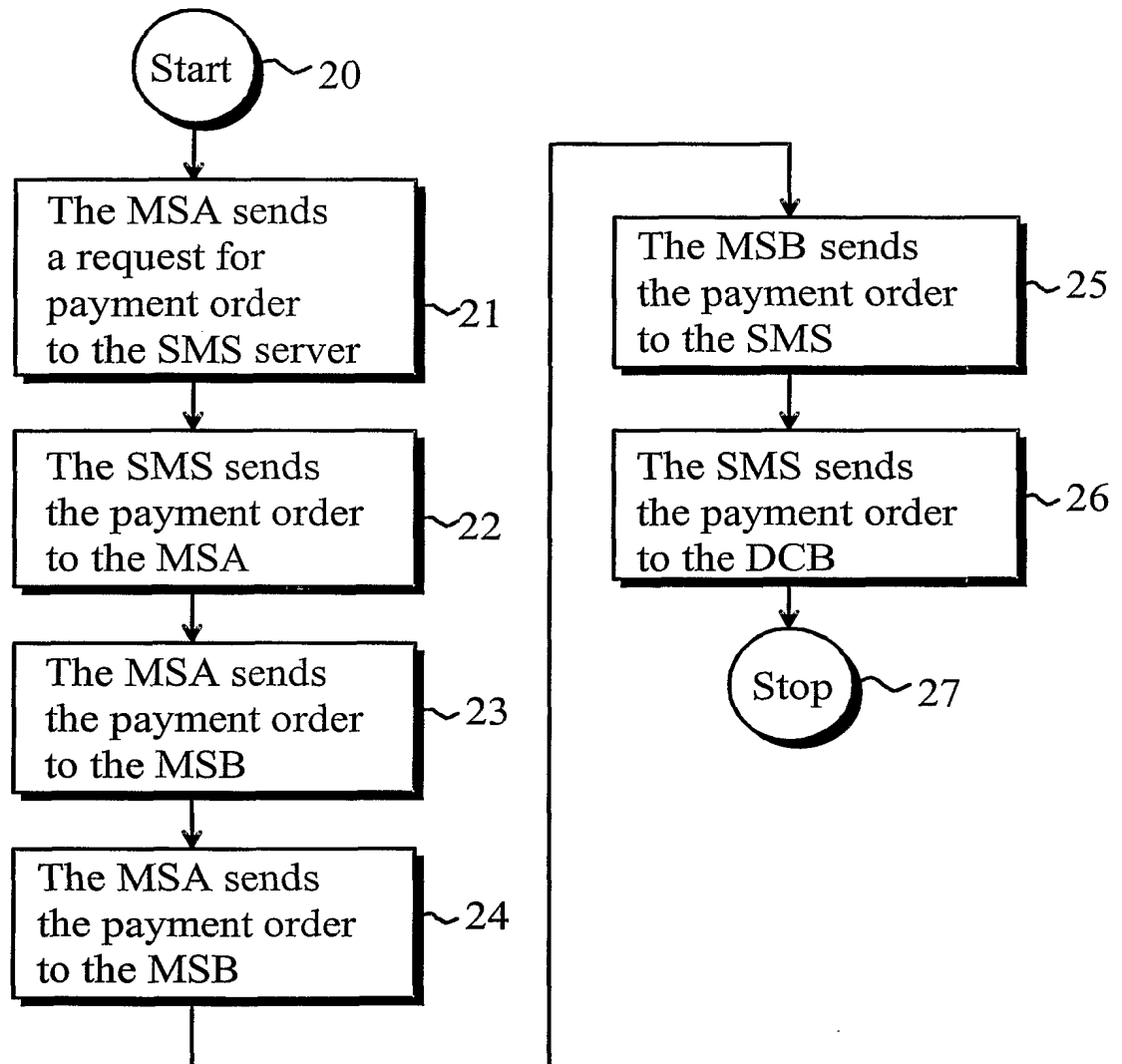


Fig. 2

I would like
to order
a payment order
of 200 EUR

Fig. 3a

This is	Identifier:123
a payment	456789123
order	456789123
of 200 EUR	4567891

Fig. 3b

This is	Sender:	Honour
a payment	040-123 456	the payment order
order	789	by sending
of 200 EUR		a message
to the number	Identifier:123	
13579 or	456789123	
calling	456789123	
0200-12345	4567891	

Fig. 3c

INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 01/00428

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G07F 7/00, H04Q 7/22

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G07F, H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI DATA, EPO-INTERNAL

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 9613814 A1 (VAZVAN,B.), 9 May 1996 (09.05.96), claims --	1-14
A	EP 0986275 A1 (SWISSCOM AG), 15 March 2000 (15.03.00), see whole document --	1-14
A	WO 9842173 A2 (FD FINANSSIDATA OY), 1 October 1998 (01.10.98), see whole document --	1-14
A	WO 9847116 A1 (TELEFONAKTIEBOLAGET LM ERICSSON (PUBL)), 22 October 1998 (22.10.98), claim 1 -- -----	1-14

☐ Further documents are listed in the continuation of Box C.
 ☒ See patent family annex.

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"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

02/08/01

International application No.

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Patent document cited in search report			Publication date	Patent family member(s)		Publication date
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